PRECAUTION IN DESIGNING CRYSTAL DEVICE

Design Notice for Crystal

Vibration

Mechanical vibration of a piezo buzzer could cause frequency and amplitude change to the output frequency. Although the affect might be minimal, Epson recommends the following product mounting guidelines.

Mounting guideline

(1) Ideally, the mechanical buzzer source should be mounted on a separate PCB from the crystal device.

(2) It is advisable to use cushion or cutting PCB, if you mount on same PCB.

(3) Traveling mechanical vibration is different just PCB or inside body. Last of all, it is advisable to confirm to inside body characteristics.

PLL Oscillator (SG-8002 and HG-8002 Series)

PLL-PLL connection

The 8002 series uses PLL technology. There are some cases where jitter will increase when connected to other PLL type devices. For application assistance, please contact Epson.

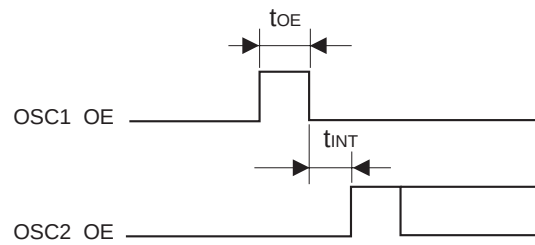
Design notice for SG-8002 and HG-8002 series.

(1) The following initialization is required when V_{DD} is supplied in a condition that OE terminal is "L", no concern when "OE" = "H" or "Open".
(For example: Wired -OR connection.)

(2) Item
All "P" version of SG-8002 and HG-8002 series. (i.e. PT, PH, PC)

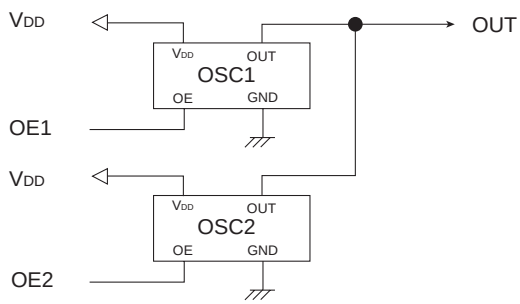
(3) Initialization
Initialization will be completed by adding a pulse stated below.
It shows the case of wired-OR with 2 parts.

● Timing chart



Symbol	Description	Min.	Max.	Unit
t_{OE}	Initialization pulse width	100	200	µs
t_{INT}	Interval time between each initialization pulse	200	—	

● Wired-OR wiring diagram



Jitter Specifications

Model	Operating Voltage	Jitter Item	Specifications	Remarks
PT/PH ST/SH	5V±0.5V	Cycle to cycle	150ps max.	33MHz≤f_o≤125MHz,C_L=15pF
			200ps max.	1.0MHz≤f_o<33MHz,C_L=15pF
		Peak to peak	200ps max.	33MHz≤f_o≤125MHz,C_L=15pF
			250ps max.	1.0MHz≤f_o<33MHz,C_L=15pF
SC/PC	3.3V±5%	Cycle to cycle	200ps max.	1.0MHz≤f_o≤125MHz,C_L=15pF
		Peak to peak	250ps max.	1.0MHz≤f_o≤125MHz,C_L=15pF